

ART. XIX. – *The Tannery, Rusland, South Cumbria.*

By CHRISTINE HOWARD-DAVIS

IN October 1985 a survey was carried out at Rusland tannery, with the intention of fully recording the standing building and any surviving external features associated with the use of the site as a tannery. To this end elevations were drawn of each wall of the building, both inside and out, and a detailed plan of the building and the tan-yard produced. A tan-pit and an external lime pit were excavated in order to ascertain their construction and depth.

The tannery lies just to the south of the Rusland to Backbarrow road, on the eastern side of the village of Rusland. It is situated next to a small stream which runs into the nearby Rusland Pool. It is a well preserved drystone building of two main constructional phases and is currently owned by the Lake District Special Planning Board, who commissioned and financed this investigation.

The tannery was probably built in the mid-eighteenth century (it was certainly extant by 1762 (Phase I)) and was extended at a later date, probably during the nineteenth century (Phase II). It appears to be a fairly typical example of a small eighteenth century

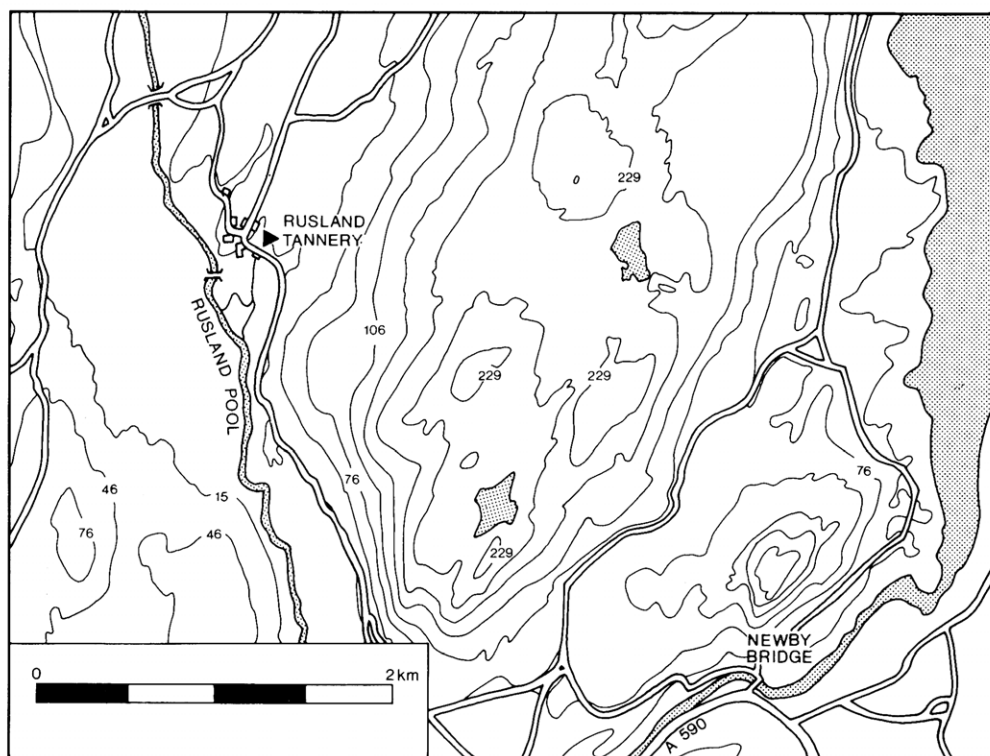


FIG. 1. – Location of the tannery.

rural tannery. However, despite the number of these small tanneries known to have existed in the Lake District by the mid-nineteenth century, ninety overall and thirty-eight in Kendal Township alone (Marshall and Davies-Shiel, 1969), Rusland is one of the few to survive virtually unaltered.

Background

The eighteenth century saw a rapid rise in the number of small tanneries as economic developments in Britain precipitated a vastly increased demand for leather. This demand so outstripped supply that numerous tanneries were started up to exploit such a potentially profitable situation. Many of these small tanneries remained viable well into the nineteenth century, until technological advances in the processes of tanning facilitated larger scale industrialization, eventually forcing the smaller producers out of business.

The fringes of the extensive mixed oak forests of South Lakeland provided an excellent location for such small tanneries, with easy access to the large quantities of oak bark required for the process. The work of bark collection was frequently associated with that of charcoal burning and often carried out by the wives and children of the charcoal burners.

By 1819 Kendal had "long been held in high esteem for sole leather" (Marshall and Davies-Shiel, 1969), a situation which persists to the present day in Kendal's small, but high-quality, shoe-making industry. The whole of the Lake District seems to have been known for the production of the heavier and more durable types of leather and indeed, leather tanned with oak bark is very hard-wearing and waterproof.

Mannex's Directory of Westmorland and Lonsdale North of the Sands in Lancashire, in 1849, lists at least fourteen tanneries in this part of Lonsdale, seven of them in, and around, the industrial centre of Ulverston and four of the remaining seven in, or very close to, Rusland. By 1850 there were fifty-seven tanneries operating in the whole of South Lakeland and thirty-three in North Cumberland, these latter producing some 60,800 tanned hides per annum (Marshall and Davies-Shiel, 1969).

The tanning process

It is difficult to comment upon the buildings of a tannery complex without furnishing a brief outline of the tanning process, since many of the structures are of a specialized nature.

Tanning is defined as the treatment of animal skins in such a manner as to halt the process of putrefaction and render the skins suitable for use as, among other things, a clothing material, providing warmth, durability and, importantly for footwear, resistance to water.

At its most fundamental, the preservation of skins can be achieved merely through drying, smoking or salting, and it seems likely that these processes were discovered almost as soon as Man began to hunt. These simple practices are still carried on by surviving "primitive" groups.

It is not known when true tanning, the chemical treatment of animal skins with substances of vegetable and mineral origin in order to physically change their nature, was discovered, but it was certainly in use during the prehistoric period. Egyptian wall-

paintings depict tanners at work and items of leather of early date have been recovered. The processes of tanning appear to have remained virtually unchanged from their discovery until the nineteenth century and many accounts survive, both from the classical world and from the medieval period. A frequently emphasized point is the unpleasant and polluting nature of the occupation, causing frequent friction with neighbouring properties and often resulting in the location of tanneries in specified areas. The occupation of tanner was of rather low status.

The transformation of raw animal skins into leather using traditional methods is a lengthy and skilled operation, taking as long as eighteen months to complete.

The untreated hides, usually cow, were either obtained fresh from the slaughter by the tanner, or through the agency of a "fellmonger" who bought and sold fresh hides, acting as a middleman. During the eighteenth century "boom" many untanned hides were imported, preserved in salt, to keep pace with the demand.

The first treatment that these "market" or "slaughter" hides received was washing, in order to remove the dirt and blood of slaughter or, if imported, the salt, since these can cause a reduction of the quality of the leather produced. The washing was sometimes carried out in a specific water pit, but as often in a local stream.

Skin is composed of three distinct layers, the outer layer or epidermis, the true skin or corium (derma) and an under layer – the adipose tissue or flesh. Both the epidermis and the adipose tissue must be removed prior to tanning, leaving only the corium, "a felt-like mass of fibres", to be tanned. In order to remove the inner and outer layers the hide must be first suspended in a solution of lime. The strength of the solution and the length of time for which the hide is left in it are both dictated by the quality of leather required. Generally, the better and softer the leather required, the longer the period of "liming" and the mellow the solution. This period of "liming" also plumps up the fibres of the corium to enable them to absorb more of the tanning liquors. The hides are placed first in an old, weakened solution of slaked lime and then into a succession of fresher ones until the desired quality is reached. Shoe sole leather, which has to be hard and tough, would be immersed for eight to ten days in a new solution of lime, whilst that for the leather of shoe uppers, which has to be much softer and more supple, would be about six weeks in old, mellow solutions.

After the appropriate period of time spent in the lime pits the hides are removed and the extraneous layers of skin removed. The hide is spread over a steeply-sloping convex work surface, most commonly known as a "beam" and frequently constructed from a portion of longitudinally split tree-trunk. The hair-side of the hide is then scraped with a blunt, concave-bladed knife to remove the hair and the epidermis, without damaging what will become the surface or "grain" of the finished leather. This is known as "scudding". The hide is then turned over and the flesh removed with a sharp convex-bladed knife. This procedure is known as "fleshing".

In order to obtain very soft leather the hides must then be treated by immersing them in a solution either of warm dog- or cold chicken-manure for a varying period of time. This dissolves any lime left in the hide and renders the skin soft and flabby. It is known as "puering" or "bating" respectively. If the aim is to produce hard shoe sole leather, then this stage can be omitted.

The hides are then washed or "drenched" in water or a mild acid (made from fermenting bran) to remove or neutralize all traces of lime in the corium. Careful

"drenching" will ensure that the finished leather is uniform in colour. If a thin leather is required, as for shoe uppers, the hide is then split or shaved down to the desired thickness using a very sharp knife, a highly skilled task.

Then, finally, the hides are ready to be tanned. A tannery could have as many as eight or ten "suspender" pits, containing tanning solutions of varying strength. The hide would be placed first in that containing the weakest and oldest solution. It was usually tied to string and attached to a stick laid across the pit. Each hide had to be kept separate from its neighbours, for allowing them to touch caused differential tanning, leading to variations of colour and quality within a single hide, which was most undesirable. Over a period of days the hides were moved from pit to pit, through a series of gradually increasing strengths of tanning liquor. After a period appropriate to the quality of leather required, the hides were removed from the "suspenders", by which time they had become soft and porous. They were laid flat, to straighten out any creases in the hide and then placed in "handler" or "floater" pits where they were again laid flat and moved, every two or three days, through another series of successively stronger tanning solutions. Finally the hides were moved into "layers", pits where they were treated with the very strongest tanning liquors. The hides were here stacked with layers of ground oak bark between them, and they became completely saturated by the very strong solution as they lay in the pit. The hides remained in "layers" for several weeks or months.

When finally removed from the "layers" the hides were washed in a weak tanning liquor before being sent to the drying sheds, where they were lightly oiled with cods-liver oil and then slowly and evenly dried.

The most common vegetable tanning agent used in Britain was oak bark. The large oak forests of South Lakeland produced large quantities and it is highly likely that small tanneries such as Rusland would have obtained their supplies locally, even though bark supplies were sufficiently limited for Lancashire and Cheshire tanneries to have imported between them over 40,000 tons of bark in 1840 (Marshall and Davies-Shiel, 1969).

Much of the woodland of south Lakeland was commercially coppiced, stands of timber being leased out to charcoal burners and bark collectors, often one and the same. In the eighteenth century many farms in the area recorded bark production as an essential part of their economy and there was a very high demand for good quality bark. It was harvested from coppiced oaks, twenty-five to thirty years old, in the spring, since the rising sap makes it easier to remove. The bark was taken off in semi-cylindrical plates and carefully dried and stored in large barn-like bark houses.

Tanning liquor was made by soaking the ground oak bark in cold water. It seems clear that bark grinding was an unpleasant and unsought-after task as the fine dust permeated everything. Whilst oak bark produces very good quality leather, it takes a long time and among other things, it was the introduction of the use of chestnut and quebracho bark, both containing faster acting tannins that halved the time taken, that led to the demise of the small tannery.

Fuller descriptions of the traditional tanning process can be obtained from Forbes (1966) and Jenkins (1978).

Rusland Tannery*

The building that houses the tannery was probably built in the second quarter of the

* A detailed description of the standing buildings appears in microfiche at the end of the volume.

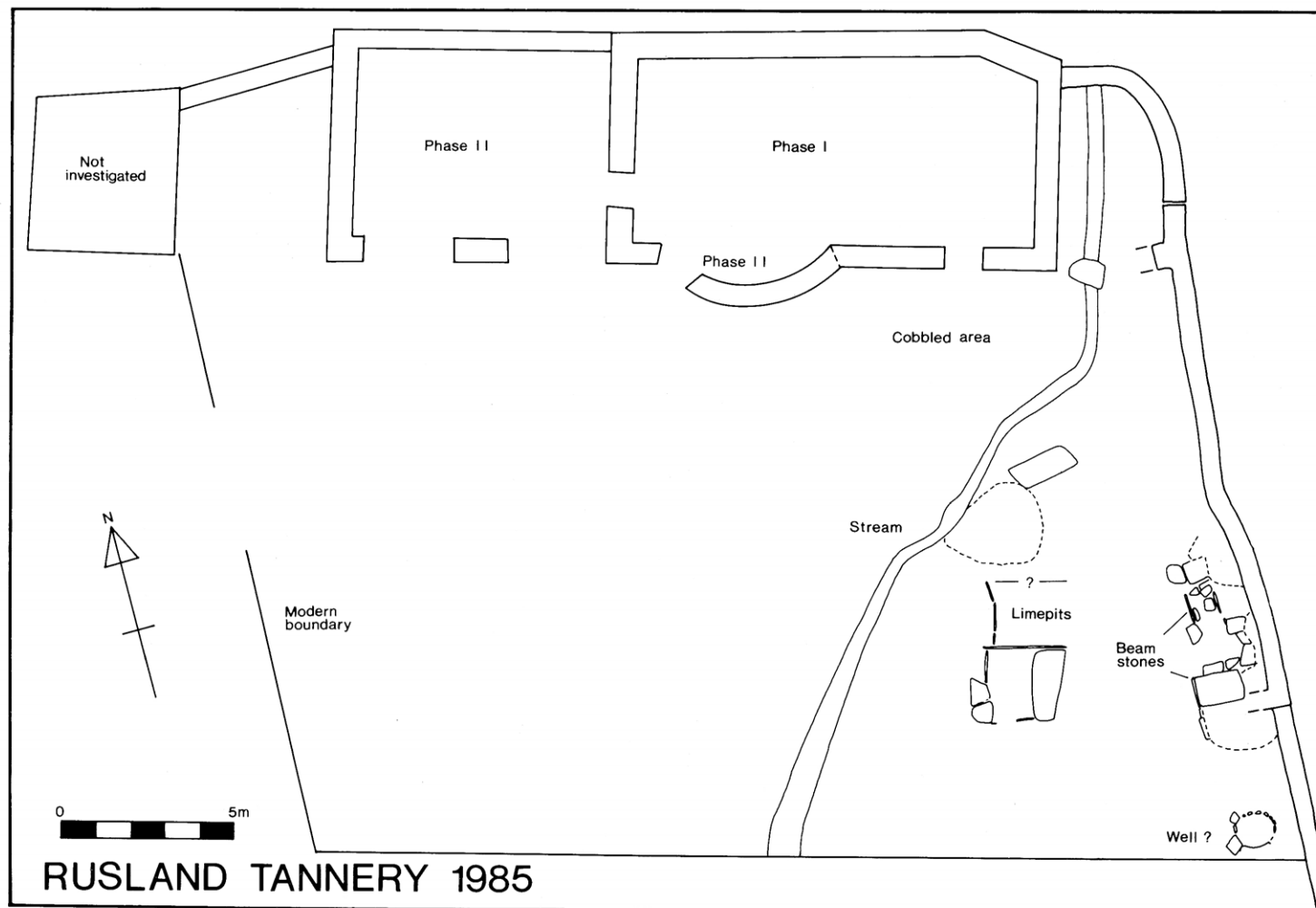


FIG. 2. - Plan of the tannery complex.

eighteenth century and was certainly extant before 1762. In its original form it closely resembled a typical south Lakeland bank barn, a type, according to Brunskill (1978, p. 86), probably no earlier than the beginning of the eighteenth century. The earliest securely dated example of such a building is 1735, but, as an extremely simple and functional building type, it existed for a long time, the latest dated example being from Duddon Bridge and dated 1904 (Brunskill, 1978).

If it was originally an agricultural building, it seems likely that it was quite quickly converted to use as a tannery, although its small size suggests that it was unlikely to have ever served as a sole source of income for its owner. By 1849 (Mannex 1849, p. 391) a single tanner is listed as resident in Rusland and he, one Daniel Dawson, is listed primarily as a farmer.

Two descriptions of south Lakeland tanneries, both dated 1821, list a far more extensive range of buildings. Yarl Well tannery, Dalton in Furness is described thus:

"... large Tanyard, Containing 23 Bark Pits, 5 Scouring Pits, 2 Baite pits, 2 lime pits and a Large Water Pit. Bark House, Drying House, Shades and a Bark Mill which goes by water ..."

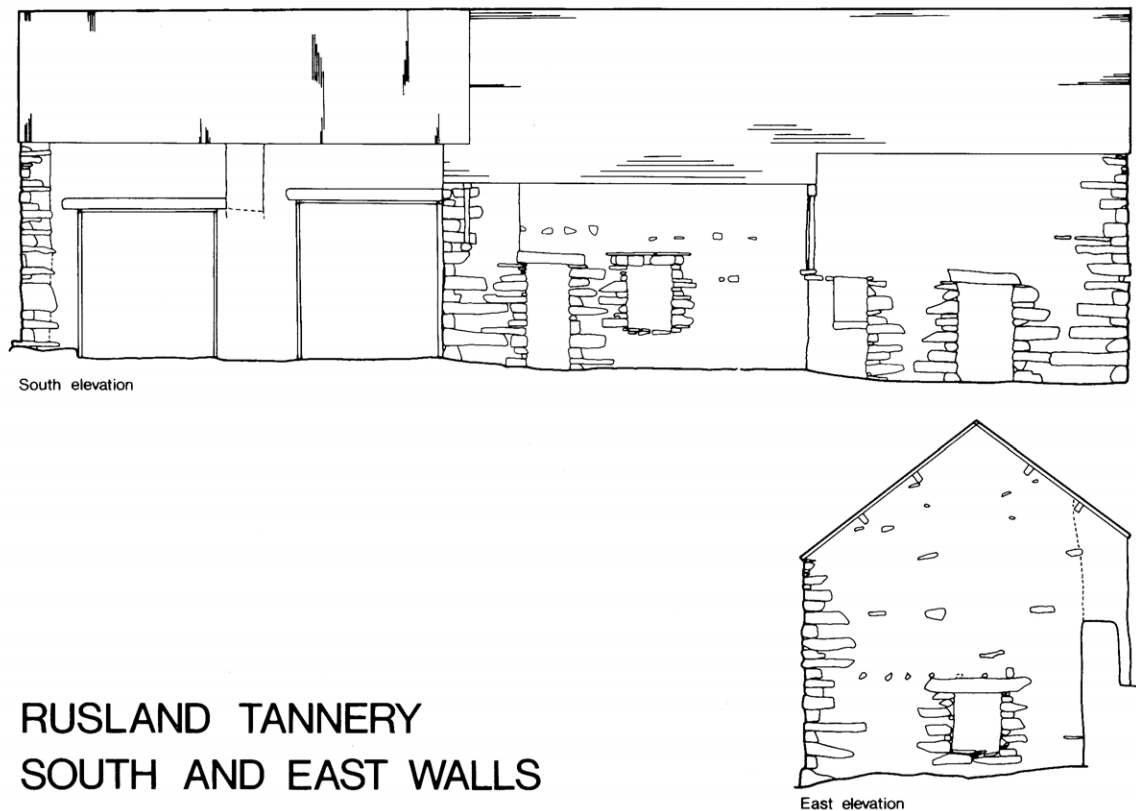
and Bank Ground tannery, Coniston:

"... Bark Mill which goes by water, large Bark Room, Drying Rooms, Leather House, 33 Tan Pits, Handlers under cover, Lime and Water Pits . . ." (Marshall and Davies-Shiel, 1969).

Tanneries, however, with ten or fewer tan pits are recorded in 16th and 17th century inventories (Williams 1979, p. 98ff). A tannery of such a size could be perfectly acceptable as an adjunct to a farm. The re-use, in neighbouring field boundaries, of a number of large slate slabs, very similar to those used to line the remaining tan-pits perhaps suggests further pits at Rusland which have now disappeared, but the evidence of the surviving pits, and the tannery lay-out, suggests that they could not have been under cover.

The surviving building is a long narrow structure of two storeys, with the long axis running approximately east to west and lying parallel to the modern road. It is cut back into the natural hillslope, so that, on the northern side, the first floor is at ground level. The tan-yard lies to the south of the building and the slope appears to have been deliberately terraced, to provide a level work-space for the tanning operations and this levelled platform continues beyond the present southern boundary of the property, probably indicating the approximate location of any missing tan-pits. The southern edge of the platform is marked by an abrupt change of slope and a slight bank containing much rubble, presumably the remains of a boundary wall. The eastern edge of the platform lies below the level of the adjoining fields and is revetted by a substantial, multi-phase stone wall.

A small stream, flowing from the north, emerges from a culvert immediately to the east of the east wall of the tannery building and, after running parallel to it for the length of the wall, flows diagonally across the site from east to west. Presently the stream is unmanaged and in wet weather rapidly floods a large part of the site. It is, however, the opinion of the author that it was originally contained within an open culvert, thus providing an easily manageable water supply, vital to a tannery. It is probably a factor in the location of the tannery that the stream flows into Rusland Pool downstream of Rusland, thus avoiding pollution of the village water supply.



RUSLAND TANNERY SOUTH AND EAST WALLS

Scale 1:150

FIG. 3. – Elevations of the south and east walls of the tannery.

Nothing of the tan-yard equipment survives on the west side of the stream, although most of the area is known to have been cobbled. It is now used for the storage of timber and machinery. The area to the east of the stream does, however, retain some evidence. Close to the present course of the stream and about twelve metres south of the building, are the remains of two, large (c. 1.5 m sq.), slate-sided pits, one of which is well preserved and was partly excavated to establish the method of construction. The other, not excavated, appeared, at ground level, to be more fragmentary. It was surmised that a large nearby slab of slate, obviously not *in situ*, had most probably been removed from the second pit, of which it had formed one side. The most likely use for these pits was as lime pits, into which the hides were placed before tanning.

Close to the east wall of the tan-yard and immediately east of the supposed lime pits are the remains of two "beams" or "hogbacks", upon which the hides were spread after liming to remove all unwanted matter, using the fleshing and scudding processes. Such "beams" were usually constructed of wood or latterly of cast iron, but at Rusland they are made of fine Penrith Sandstone. One of the "beam" stones is complete, being formed of a single, sloping, convex slab of sandstone, raised at one end to approximately waist height by resting it on a single edge-set, vertical slab of slatestone, slightly inset from the edge of the beam. The base of the beam lies on the ground and is prevented from slipping by a second, smaller, slab which is set into the ground in front of it. The second "beam" stone is missing and only the supports survive. The area around the "beam" stones is paved, to provide a dry and level footing for the workers, and the space between them and the lime pits may well have been cobbled, since traces of cobbling were encountered in several places.

Reference to the First Edition O.S. 6 in. map of 1851 suggests that the area of the "beam" stones was roofed at that time, since the tannery is shown as an L-shaped building, with a range of buildings running north to south down the eastern boundary of the property. No substantial walls remain from this range but there are the slight remains of two cross-walls jutting out at right-angles from the present eastern boundary wall. It does not seem unreasonable to suggest that the area was simply roofed over, providing shelter for the workers but leaving them in the open air, presumably a desirable situation considering the notoriously unpleasant and smelly nature of the work.

To the south of these stones, in the extreme south-eastern corner of the present property, there lies a stone-lined well or pit. Its function is unknown.

The construction of the tannery building can be divided into two major phases, although the method of construction used in both is ostensibly identical, that of (presumably) "watershot" drystone walling. Erecting the walls in a "watershot" fashion, that is tilting all the stone slabs down slightly from the centre to the outside of the walls, enabled driven rain to drain easily out of the walls instead of soaking into them. It also allows the wall to be constructed with a "fair face" (a more or less level vertical surface), the nature of Lakeland slatestone being that it normally fractures with an obtuse angle between bed and face, so that laying the stones at a slight angle brings the face of the stones into the vertical (Brunskill, 1978).

Phase I

The first building was erected probably not before the second quarter of the eighteenth

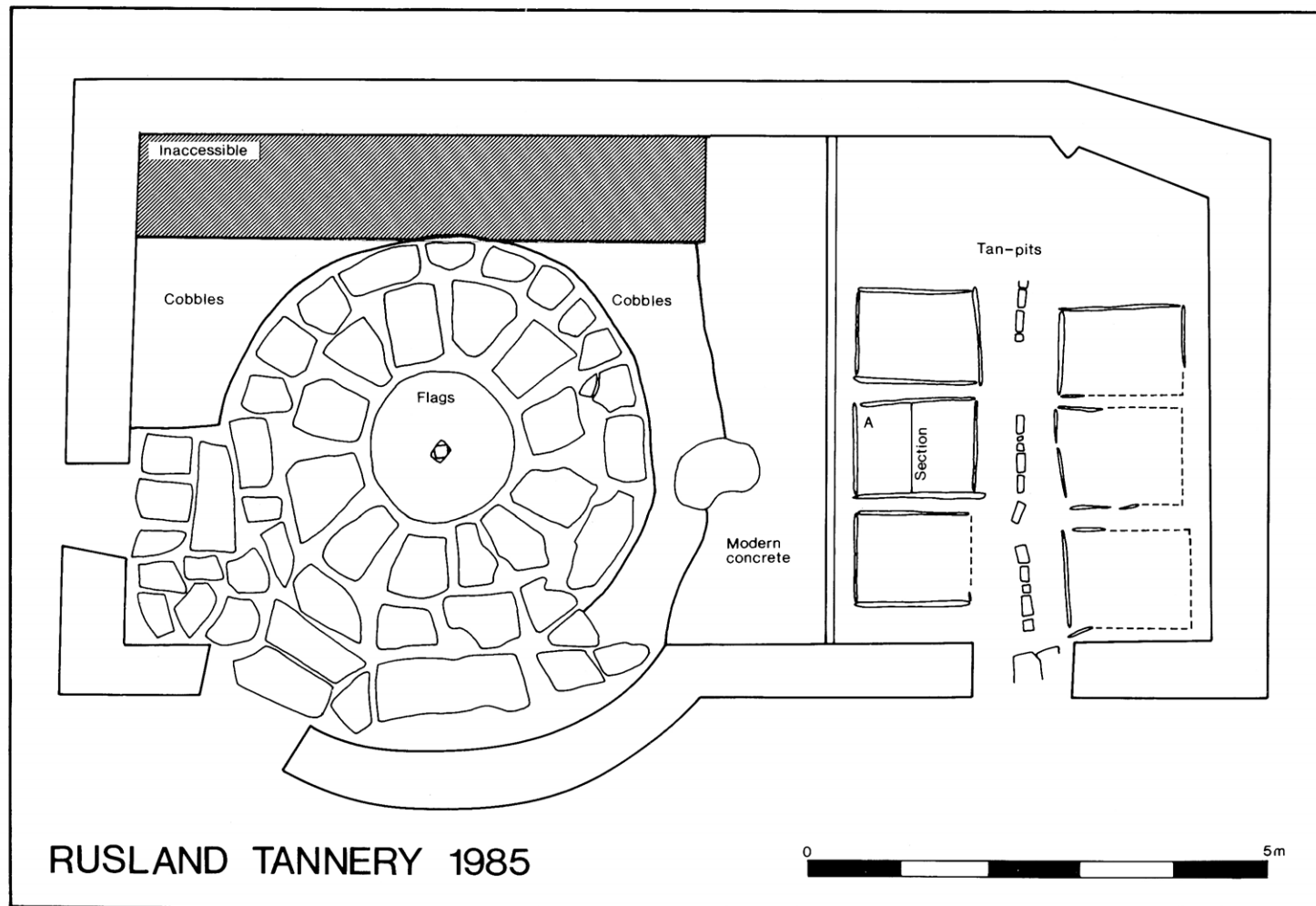


FIG. 4. – Floor plan of the Phase I building shows the later flagged floor and the six slate-sided tan-pits.

century (it is unlikely to have been earlier than 1735, but before 1762). It was a simple rectangular building cut back into the hillside in the manner of a bank barn and may well, in origin, have been an agricultural building. The northern (uphill) side of the building incorporated a single window and large double doors to enable material to be off-loaded from vehicles using the road and to be stored on the upper floor. There is no surviving access to the ground floor from the northern side, and there may never have been any provision beyond, perhaps, a trapdoor in the floor. A means of transferring goods between the two levels was provided by the two large openings in the west wall, at first floor height, through which goods stored on the upper floor could be easily lowered to the ground.

The appearance of the south wall during this phase is largely unknown, since it was greatly modified by the later addition of an apsidal extension (Phase II).

There was a single window in the east wall, at ground floor level. This window was subsequently blocked, with a single thickness of hand-made bricks, which were then plastered over. A small piece of wood was fixed to the wooden lintel and plastered; inscribed into the wet plaster were the letters IS 1762, thus providing a date for this small modification. It would not be unreasonable, had the building originally been in use as a barn, to suggest that it also provides a date for its conversion to use as a tannery, since such a date accords very well with the economic developments, mentioned above, that resulted in the proliferation of small tanneries in the mid-eighteenth century.

It would have been during this conversion that the six, or possibly eight, slate and timber-lined (oak ?) tan pits were inserted into the floor at the east end of the building. They were symmetrically arranged on either side of a narrow cobbled path with a central drain (now filled with brick) which ran to the doorway in the south wall. The tan-pits seems to have been deliberately staggered in height, those to the north being the highest, possibly to allow any spillage of tanning liquors to drain either into the nearest tan pit or away towards the door.

The roof, covered with typically D-shaped Lakeland slates of random widths, set in diminishing courses, has been renewed and all the timbers are modern.

Preserved on the outside of the east wall is a rafter line, presumably supporting a pentise to afford shelter to those working by the stream. This accords well with the 1851 map, which shows the tannery buildings to continue right up to the eastern boundary wall. Indeed it might be that the small piece of land between the present tannery building and the east wall of the property was entirely roofed over and it may have provided a place for the initial washing of hides, removing blood and dirt or salt prior to tanning. It has been suggested that this area represents the remnants of a millpond and water-wheel housing, but a close examination of the area provided no evidence to uphold this theory, especially since the tannery is known to have incorporated a horse mill.

Phase II

Phase II is deemed to comprise two modifications to the building, although it is not possible to establish from the building fabric whether or not they were exactly contemporary.

The Phase I structure was modified by the addition of an apsidal extension on the south side, intended to accommodate a horse-driven bark mill. This addition, which

necessitated the blocking of a door in the south side, was accompanied by the laying of a fine flagged floor within the building. Presumably this was intended to provide a firm and level footing for the horse driving the mill, since it is arranged about a focus of the central pivot of the millstone.

A large extension was added to the western end of the Phase I structure. It too was cut back into the hillslope and is of two storeys. It appears that the first floor was open on the north and south sides but recent alterations to facilitate the present use of the building as a workshop and machinery store have effectively obliterated any details of the ground floor arrangements of the south wall. However, differences in the treatment of the cobbling and a slight but obvious change of level, enable it to be suggested that the ground floor may have been divided into two different areas, but there is no evidence to suggest that it was physically partitioned and it may just represent the performance of different tasks within a single room.

Unlike the Phase I building the roof timbers of this extension appear to be mainly original, although the original covering (presumably of Lakeland slates) has been replaced with modern cladding. The roof is supported by a single truss of tie beam and light collar type.

Two suggestions can be made as to the function of this extension. The most obvious is that it provided extra covered storage for bark. It should be noted here that bark must be stored under cover, since the soluble tannings which make it invaluable, are quite easily leached out by rain, drastically reducing its effectiveness. The large number of bark barns to be found in the fields of south Lakeland attest the need to store it in relatively dry conditions in this area of very high rainfall. Part of the ground floor may have been used as stabling for the horse or horses used to drive the mill.

The second suggestion is that this new building provided a drying room for the hides after tanning, since the hides have to be dried slowly once they are finally removed from the tanning pits. In this case it may be that the open north and south walls were originally closed by louvres to protect the drying hides from rain, but no evidence for this remains.

No date can be assigned to the extension, except for a broad eighteenth to nineteenth century range indicated by the nature of the roof truss.

Dating for the building as a whole is difficult, as is the case with many vernacular buildings. Whilst an eighteenth century origin can be asserted with confidence, no evidence survives as to when the tannery ceased to function, although local inhabitants still refer to the building as "The Tannery" or "The Old Tannery", perhaps implying that it functioned within living memory. Mention was made of the horse mill as if from memory by one elderly male inhabitant, but the author is aware of the inherent unreliability of the perception of time in such verbal recollections, whereby the experiences of a preceding generation can become incorporated inadvertently into the memories of the next.

As thorough a search as time allowed of the documentary record has proved no more elucidating. The Archibald Papers (Lancs. Record Office) (the Archibald family being previous owners of the building) and Parish records have furnished no dating evidence. The tannery, as mentioned elsewhere, does appear on the O.S. First Edition 6 in. map, 1851, clearly marked as a Tan Yard, whilst on the 1892 O.S. 6 in. map, it has ceased to be marked as such.

In 1851 it appears as an L-shaped building, occupying the north and east sides of the

property and an unidentifiable circular structure is shown in the centre of the yard. One suggestion is that this might represent a preceding bark mill, but this must be offered without evidence. Interestingly the stream is indicated as issuing from the southern boundary of the property and this might indicate that it was indeed contained within a culvert as it crossed the tan-yard. By 1892 the size of the buildings had been reduced and they had become split into two separate ranges, no longer meeting at the north-eastern corner of the property. The circular structure was no longer represented.

A larger scale (25 in.) O.S. map of 1890, shows the property in more detail and it is obvious that by 1890 the present tannery building had attained the Phase II layout, with the apsidal extension clearly shown in the centre of the south wall. There is a suggestion that by this point the eastern range of buildings were in fact ruinous and this might suggest that the tannery was in decline by this date. This accords with the general decline in numbers of Lakeland tanneries towards the end of the nineteenth century, as new methods of tanning forced the small rural concerns out of business. If, and there is no evidence for this, the tannery continued to operate into the twentieth century, then it could be suggested that the period of the Great War, causing a massive temporary depopulation of the male labour force through enlistment, may well have seen the cessation of its use as a tannery.

Subsequently the building was used for agricultural purposes, mainly as a cattle byre. The tan-pits were filled in, probably in the middle of this century, and boarded over. Minor alterations were made to accommodate feeding troughs but these have subsequently been removed. At some time during its use as a barn, the flagged floor installed during the Phase II extension, was taken up but the flags were not removed and have been recently re-laid.

Bibliography

- Brunskill, R. W., *Vernacular Architecture of the Lake Counties* (1978).
 Forbes, R. J., *Studies in Ancient Technology* (1966).
 Hodges, H., *Artifacts* (1970).
 Jenkins, J. G., *Traditional Country Craftsmen* (1978)
 Mannex, P. J., *The History, Topography and Directory of Westmorland and Lonsdale North of the Sands in Lancashire* (1848). (1849).
 Marshall, J. D. and Davies-Shiel, M., *The Industrial Archaeology of the Lake Counties* (1969).
 Marshall, J. D. and Davies-Shiel, M., *The Lake District at Work: Past and Present* (1971).
 Singer, Holmyard, Hall and Williams, *A History of Technology*, vol. 2 (1957).
 Thomas, S., Clarkson, L. A. and Thomson, R. *Leather Manufacture Through the Ages* (1983).
 Williams, J. H., *St Peter's Street, Northampton, Excavations 1973-1976* (1979).



PLATE I. – The best preserved of the two Penrith sandstone beam-stones.

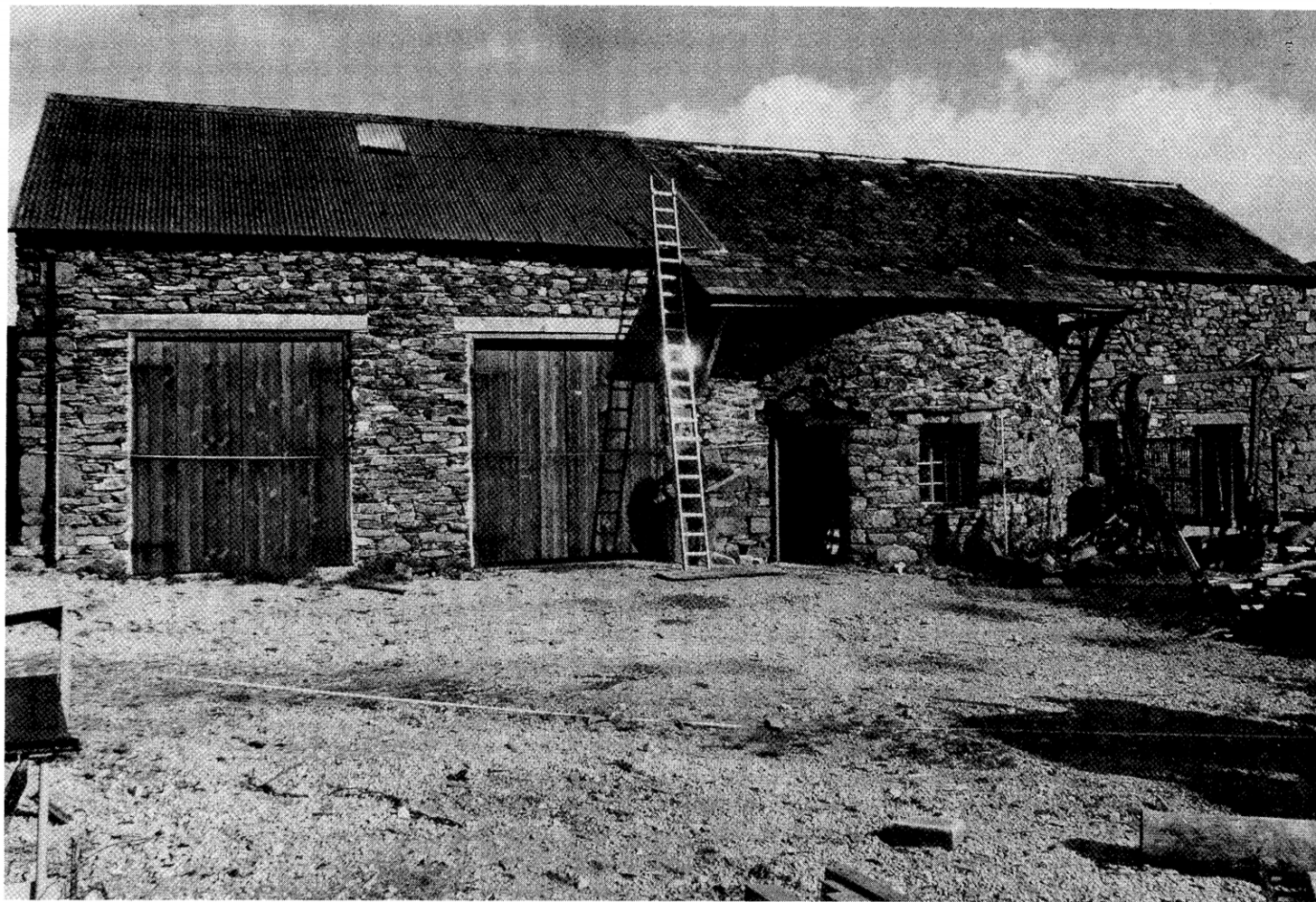


PLATE 2. – The tannery building today.